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## THE SCIENTIFIC AMERICAN:

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## Poetry.

MOVING ON.

BY GOODMAN BARNBY.

All the stars are moving,  
Ever round the bright spheres sailing;  
Twinkling, beaming, raying, shining;  
Blackest night with darkest lining;  
Aye revolving thro' the years,  
Playing music of the spheres,  
Like the the Eastern star of old  
Moving toward the shepherd's fold;  
Where the wise men (grace to meet them)  
Found the babe of Bethlehem.  
God is in each moving star:  
God drives on the Portal car;  
Let his will on earth be done  
As in heaven the stars move on—  
Move on!—Keep moving!  
Progress is the law of being.

All the waves of sea are flowing,  
As the winds of heaven are blowing;  
With a gentle, foam-like quiver,  
Flows the streamlet to the river;  
With a stronger, swifter eddying,  
Flows the river to the ocean;  
While sea's billows eversome  
Flow and gain upon the shore—  
Wave on wave, in bright spray leaping—  
Like endearment never sleeping;  
While the pool which moveth never,  
Grows a stagnant bog forever—  
White-gilled die its transient breath,  
Green its waters, feel its death,  
Wildering marsh-gives clear it runs,  
While still flows the river on—  
Move on!—Keep moving!  
Progress is the law of being.

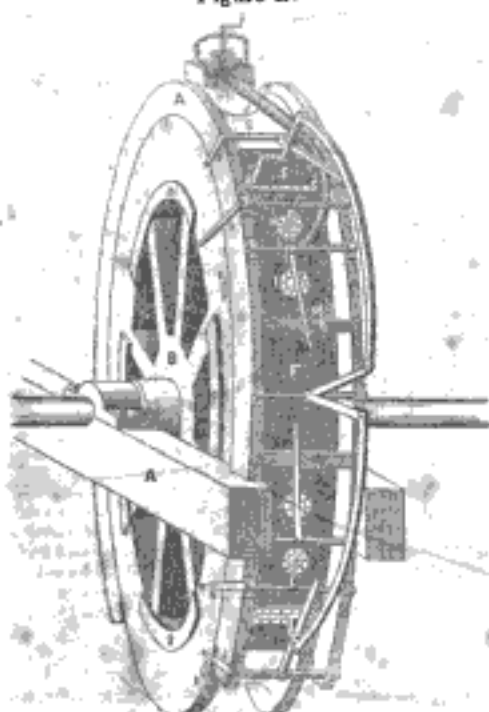
Thus within the skies and ocean,  
Life is moving into motion;  
Stars percolate and rivers flow,  
And earth! what mad Galileo!  
When in dunes deeply lying,  
Faint and muffled, hardly dying,  
Thy' for truth, with honest pride,  
Yet "it moves! it moves!" he cried.  
And the world! its life is motion,  
As with stars, and as with ocean;  
It is moving, it is growing,  
All its tides are onward flowing;  
The land is moving to the land,  
The eye is moving to the roof,  
The mind is moving to the book,  
The soul lives on in moving life,  
The hand is moving to the sword,  
The heart is moving toward the Lord!  
Move on!—Keep moving!  
Progress is the law of being.

## A Curious Flower.

A singular phenomenon, says a French paper, has shown itself in a greenhouse at Lyons. At the time when all the growers of *Camellia*, *rose*, *dahlia*, &c., are puzzling themselves to get the blue color, the only plant which nature has refused to these kind of plants, chance has thrown a shade of azure blue upon the petals of flowers produced by one single branch of a *Camellia* root of the species *Camellia rubra*. This plant belongs to M. Dageas. The interior petal of the flowers are of a delicate red, the exterior are white, and both are edged with blue. The flower thus unites three additional colors.

## SMITH'S ROTARY ENGINE—Perspective View.

Figure 1.



It would appear to most minds that rotary motion is superior to all kinds of motion for propelling machinery, hence the Rotary Steam Engine has occupied the attention of some of the greatest men. James Watt was the first inventor of the rotary engine, but he found that the one which he first contrived and for which he obtained a patent, was far inferior to his parallel engine; he therefore laid it aside and devoted no more time or attention to the subject. Since his day, numerous rotary engine inventions have appeared in the field, and as early as 1796 Mr. Cook, of Dublin, secured a patent for one different to Watt's and which operated very well, but not equal to the reciprocating engine, made at that period in England; it was therefore unable to compete in the market and was laid aside. We believe

that we have seen more than forty different

Rotaries, but none that we could say were equal to the horizontal or reciprocating engine as now built. Yet for all this, some lucky inventor may strike at the conclusion, of making a rotary engine to supersede in compactness and economy all others in use. We are, therefore, always glad and ready to present any new ideas on the subject that inventors may have arranged into a system.

DESCRIPTION.—A, cast iron frame. B, wheel. C, groove. E, drop or gate. F, cone. H, poppet valve, and steam passage into the groove C. I, escape valve. J, reflecting lever. K, cog. L, throttle valve. M, adjusting screw. N, reflecting lever, to let the steam into the groove C. O, projection to raise the lever N.

## Napoleon's Poison.

From the time of Napoleon's retreat from Russia, he constantly carried round his neck in a little silver bag, a poisonous powder which his physician had prepared by his express order. On one occasion, when the sun of fortune was about to set on him, he had recourse to this chosen antidote. "I hesitated no longer," said Napoleon, "but leaping from my bed, mixed the poison in a little water, and drank it with a sort of happiness. But time had taken away its strength; fearful pains drew forth some groans from me; they were heard, and medical assistance arrived. It was not Heaven's will that I should die so soon—St. Helena was my destiny."

## Hints About Food.

Roast meat contains nearly double the nourishment of boiled, but boiled meat is better adapted to weak digestion. Frying is one of the very worst methods of dressing food, so boiling is one of the best. Baked meat has a strong flavor, is deprived of some of its nutritious qualities, and is difficult of digestion. Spices, sauces, and melted butter, should never be used by the invalid, and in health they are not required.—*Wilton's Practical Medicine.*

## To Ascertain the Age of a Horse.

Every horse has six teeth above and below; before three years old he sheds his middle ones; at three he sheds one more on each side of the central teeth; at four he sheds the two corner and last of the fore teeth. Between four and five the lower cuts his under tusks, at five he will cut his upper tusks, at which time his mouth will be complete. At six the grooves and hollows fill up a little; at seven the grooves will be well filled up, except the corner teeth, leaving little brown spots where the dark brown hollows formerly were. At eight the whole of the hollows and grooves are filled up. At nine there is seen a very small hill to the outside, corner teeth; the point of the tusk is worn off, and the part that was concave begins to fill up and become rounding; the squares of the central teeth begin to disappear, and the gums leave them small and narrow at the top.

A lady riding a few days since on horseback, through one of the Boston streets was started at particularly hard, because she sported a pair of nice, clean, snow-white pantaloons—much ruffled straps! We have heard of ruffled shirts, ruffled collars, ruffled trowsers, but never before of ruffled straps.

## RAIL ROAD NEWS.

There are 147 Railroads in the United States measuring 2,392 miles, now finishing and in use. The first Railroad ever built in the United States was that of Quincy, Mass., 4 miles long, finished in 1827; the second was the March Creek Road, Pennsylvania, 5 miles long, having a track but 2 feet 6 inches wide. The highest grade of a travelled road (50 feet in a mile) is on the Springfield and Albany where it crosses the Green Mountain chain. That from Cleveland, Ohio, to the quarries, has a grade of 254 feet to the mile.

## Hudson River Railroad.

The contracts for making this road through that part of the Highlands which has been by many considered so difficult and expensive, have all been made at a much less cost than was anticipated. The whole extent of tunnelling in this difficult portion of the road is only 1300 feet, viz. 100 feet of tunnel on the Poughkeepsie section, below Peekskill; 100 feet at Anthony's Nose; 450 feet at Philip's, opposite West Point; 450 ft. at Breakneck Hill, Vermont and Massachusetts Railroad.

At the late meeting of the stockholders of this company, held at Baldwinsville, it was unanimously voted to put the residue of the road from Northfield to Brattleboro' forthwith under contract and to complete the same without delay, and unite this company with the company chartered in the state of Vermont.

## Great Western Railway.

When this splendid road is finished and a bridge thrown across the Niagara river, the time required to travel from Detroit to the Falls will only be ten hours. One hundred and seventy miles of it were put under contract last month.

## The Broad Gauge.

The articles of agreement between the St. Lawrence and Atlantic Railroad Companies, stipulate that the track shall be 5 feet 6 inches wide in the clear, between the rails.

## New Broad Gauge Line in England.

A bill is about to be brought into Parliament for a new broad gauge line, connecting the Western Railway with Dudley, Worcester and the mineral districts of Wales.

## Greenock Railway.

Sixty thousand passengers were carried along this road in two days, without a single accident, although 3600 passengers were in every train. All went to see the Queen but had to pay their own passage.

## Wood's Patent.

It will be remembered by our readers that a decision was had not long since in the United States Court, in favor of this important patent covering, as it does, all cast iron ploughs. We understand that the heirs are now making settlements in the State of Connecticut for damages upon the patent.

## Perpetual Motion.

A Mr. J. Hunt, of Hinkley, England, frame work knitter, states that after countless years' intense study, he has discovered perpetual motion. His machine, he says, is capable of working any mill, or turning any motive power, without the aid of steam, water, or air, having an inherent power of its own—an arm which never tires. A gentleman in Brooklyn N. Y., claims to have discovered a similar power some years since. We are, however, skeptical on this subject of perpetual motive power.

## A Sagacious Dog.

The ear of a dog belonging to a man near Southwick was severely hurt, and the animal was consequently taken to a chemist's shop where the wound was dressed. During three days the dog was regularly conducted to the shop by his master, but on the fourth morning he found his way there alone, leaped on the counter, and wailed till his ear was dressed. This visit he repeated every morning until his ear was wholly healed.



The Great Fair of the American Institute.

The twentieth annual Fair of the American Institute has been distinguished for a great variety of new, beautiful and useful inventions. It is not possible to notice all the different articles out of a mass of nearly two thousand; indeed it would be out of place, as the same kind of many articles have been exhibited of late before. Yet even to the new and useful machines, it is not possible to pay that tribute of notice which we should be happy to do and which we are glad we are not able to do, because of the great number of such productions—a reason which all will rejoice to see set forth in the inventive line of our people may be said to leave description far behind.

The Agricultural department is well represented by a goodly array of choice implements among which we picked out the unique plough, a description of which is on another page.

The manufacturing department is well represented by some splendid cotton and woolen cloths. The mechanical department in which all the rest depend, was never surpassed nor equalled for useful inventions among which we noticed Harland and Tuttle's patent centrifugal water wheel—a model and a beautiful one. It is of great power and its facility of adaptation is not surpassed by any other wheel now in use. They are manufactured at the Fulton Foundry in this city, and also by E. Tuttle, No. 4 Broadway, South Boston. We also noticed the Fine and Boring Alarm, the invention of Messrs. Tunnicliffe and Hopkins, of Brookfield, Connecticut.—The principle of the fire alarm is the expansion of metals communicating by a wire to an alarm clock and by wires from doors and windows to the clock. The burglar alarm is a great and a most useful invention and it should be put up in every house. No invention is more needed than this, and we hope it will be generally adopted in this city. A portable Sun Dial is another beautiful invention by Mr. W. Jones, 275 Spring st., of this city.—We have seen all these things with our eyes, and refer to by number of the catalogue.—We believe that Mr. Jones wishes to dispose of the patent right of his astronomical clock, as well as his dial, for which he has received a medal and diploma. The phenomenon of Mr. A. T. Cochran of 355 Greenwich street of this city, with an entire new experiment constructed by himself is a beautiful and good invention.

These were a number of cases of jewelry, such as gold pens, &c. which we shall notice according to their merits at some other time. Benson's new Rotary Steam Engine patented last July is a curious sort about the best rotary we have seen in of 30 horse power and works wonderfully with only nine pounds of steam on the lever. It takes up as little room as a two horse power parallel engine. It is worked by the steam acting on four pistons in a ten inch cylinder working at an angle as they rotate on two large cog wheels. The pistons are worked the same as the pistons of any other engine and the crank ends are built into sockets in a disc—hence it is only a rotary engine.

Lewis Kirk's Steam Hammer, is another beautiful invention. At the command of the engineer it is a lion or a lamb.

Gilman's Self-feeding Coal Press, is just the thing we have spent many a thought upon in vain. It surpasses all others that we have seen. Wells and Wells are the agents in this city.

Chase's Card Spinner, is another invention. It covers a cotton thread with wool right from the card. Kane and Leonard's Spindle Spinner, is also a good and unique invention. It was invented at Mattewan, and combines the qualities of the thread and made frames, for after the yarn goes through the drawing roller

it spins over the point of the bobbin spindle dispensing with the fiber entirely, being guided on to the bobbin by a traveller whirling as the spindle collar.

Murphy's Mordanting Machine, is a good invention, it can mordant avoid a carriage hub in short order.

Mr. J. Eckel's Safety Union Water Gauge, is a most valuable invention and received considerable commendation from some scientific men.

The best Gingham we noticed were those from Marshall's works, Troy. They are very substantial, and must win favor with those who buy fabrics that will wear well. There are Cotton Cassimeres, from New York Mills, Watertown, that challenge admiration.

There were a great number of other useful and beautiful inventions, which we shall be happy to notice again.

#### A Crooked Fellow.

There is a piece of fence in Indiana, made of pine rails so crooked, that every time a pig attempts to crawl through it he comes out on the same side from which he starts.—So says one, who saw it. We think the man must have been wonderfully cross-eyed, when he looked at it.

#### Destruction of Large Mills.

The extensive Gallego Flouring Mills in Richmond, Va., were entirely destroyed by fire on Sunday morning, about five o'clock. The loss was very heavy. The mills were owned by Messrs. Warwick & Burkhardt. A large number of other houses were destroyed. The whole loss was estimated at \$750,000.

#### Vaccination and Small Pox.

M. Van Berchem, from his researches on vaccination and small pox, has come to the conclusion that among the vaccinated, the older the individual the greater is the liability to an attack of the small pox. Among the unvaccinated it is the reverse, the younger the person the more he is liable to an attack of small pox.

#### Civil War of Turkey.

Information from Constantinople has been officially communicated, of an intended blockade by the Sultan's Fleet of a part of the coast of Albania, from Preveza to the port of Durazzo, in consequence of an insurrection in that province.

#### Franklin Institute.

The annual exhibition of this Institute will be opened at the Museum Building North and George sts. Philadelphia, on the 10th inst. and from the extensive preparations being made we have no doubt but that it will prove highly attractive to the visitors and creditable to the American mechanics.

#### Indiana.

The Wabash river and its tributaries water nearly two thirds of all the counties of Indiana! Of eighty-eight counties in this State no less than fifty-five are watered by the Wabash river!

#### A Tough One.

The Mobile Advertiser states that a negro weighing 170 pounds fell from the third story of a house in that city, and struck on the pavement without breaking a single bone, or even, the skin on any part of his body.

#### To Cure a Cough.

The editor of the Baltimore Farmer says, the best remedy he ever tried in his family for a cough or cold, is a decoction of the leaves of the pine tree, sweetened with loaf sugar to be freely drunk warm when going to bed and cold throughout the day.

#### Sugar.

It is estimated that this year's Sugar crop, in Louisiana, will exceed last year's 30,000 bushels.

#### Etiquette.

When the great Duke of Argyll was one night at a theater, in a side box, a person entered the water box in boots and spurs. The Duke arose from his seat, and with great ceremony expressed his thanks to the stranger, who somewhat confused, desired to know for what reason he received those thanks, when the Duke gravely replied—"for not bringing your horse with you sir."

#### Facts for the Public—The Scientific American.

A gentleman called at our office a few days since to desire us not to give notice of his inventions until he called and requested us to do so, we asked him why he made that request? Says he, "since you published an engraving of an improvement that I made in constructing certain parts of machinery in Saw Mills, I have been so troubled with applications to sell the patent rights, and have had so many orders to fill, that I cannot properly attend to all the business forced upon me by your notice, which very much perplexes me." We asked the gentleman's pardon for the trouble we had caused him, and promised never to decompose him in like manner again, although he was not actually so much displeased with us for that agreeable kind of trouble but what he insisted upon our taking ten dollars in (which we declined) as a fee for some of the benefits we had actually rendered him.

To inventors we would say, does this circumstance not show unto the world, what a great advantage can be secured to every publishing your inventions in our paper? Surely a paper that has 11,000 of a weekly circulation is a far better medium of spreading knowledge of your inventions throughout our continent and the world, than one that has but as many hundred. Remember that the Scientific American has the largest circulation of any technical paper in the world and a larger one than all the others published in America combined. Remember also that our prices for engraving and inserting notices of inventions are no higher than those of other papers of not one-fifth the circulation and whatever amount of money sent us has always been used, and shall be, for the purposes aforesaid, and that all things will be managed for the interest of inventors as well as though they were here to attend to the business themselves.

In connection with our Patent agency in this City, we have an agency in Washington and for a suitable fee for examination, any information will be promptly and minutely secured to all those who may desire it: in giving advice regarding the utility of inventions, we have always been guided by an honest regard for the welfare of inventors and when we have thought that some improvement or invention seemed to be patented by an inventor, would be of no benefit to him, we have always candidly advised him not to expend his money in vain. Such has been the course which we have pursued, and such it always shall be.

#### Consumption of Sugar.

In England the present consumption of Sugar may be taken at 2,000,000 tons per annum, being at the rate of 21 lbs. per head of the population, while in France it is only 8 lbs. per head.

The British Government have established a semi-monthly mail to the copper mines on Lake Superior on the north side of the lake. The conveyance leaves Toronto on 12th and 26th of each month, and takes passengers in 63 hours to Sault Ste. Marie, by way of Lake Simcoe, to Stargess Bay on Lake Huron, and thence to Owen's Sound, and then to the South. This is 450 miles nearer than by Lake Erie.

Midshipman Pollock, who fired his pistol at the thigh of Mr. Jewett of the Buffalo Commercial, and would probably have broken his leg at least had not the ball been stopped by Mr. J.'s wallet, has been convicted on a second trial and sentenced to five years' imprisonment at Auburn.

A Cincinnati paper says that Kentucky has 26 millions of acres of land estimated to be worth 250 millions of dollars.

Alum water, repeatedly applied is one of the most effectual remedies known for that troublesome winter complaint called "chilblains."

An English paper speaks of a recent importation of 11 barrels shoe-poles from Baltimore, 331 wheel-spokes from Solbury.

The mercurial part of the Atlantic is more than two miles deep. In other parts it is one and a half miles.

#### The Lasso.

In a tight skirmish the lasso is a dangerous article. A Californian will lasso a man and drag him off his horse, and choke him in one minute; and without getting off his horse he will take his lasso off the neck of his vanquished foe, and in two minutes will be prepared for another. I have seen a man do this when fighting the wild Indians; and a man pursued by two others with a brace of pistols each, would stand a better chance of saving his life, than a man pursued by one Californian within lassoing distance, because the party pursued by those with the pistols might possibly dodge and destroy the aim of pursuer; but he who should be pressed by the Californian with his lasso, would have no means to escape, because the lasso, when thrown at anything that is running, is as true in the hands of a Californian, as a rifle ball from a good marksman's steady aim.

We learn that a bed of coal has been discovered in the town of Ridgefield, Ct., and that measures are in progress for working it. A gentleman of experience has contracted with the proprietor of the land for the privilege, and is now in the pursuit of proper hands and means for commencing operations.

A colonial boat of Jans in perfect preservation was lately discovered at Tunis by the workmen employed in excavating stone from the site of an ancient harbor. The Bey of Tunis has presented this exquisite work to M. Delaparte, grand of the general consulship of France at Tunis.

When a London Cockney, who had always risen at midday, had been induced, on a winter party, to see a sunrise, he exclaimed, when the sun was above the horizon and people were turning away, "is that all? I thought it would be like a rocket!"

A stone weighing a ton and a half, and a derrick used for hoisting it, fell from the wall of the new church, corner of Beach street, London, Saturday forenoon, a distance of some 70 feet, fortunately without injuring any one, though several persons were in imminent danger.

A Greek maid being asked what fortune she had for her husband, answered—"I will bring him what is more valuable than any treasure—a heart unspoiled and virtue without a stain, which is all that descended to me from my parents." How beautifully expressed.

Mount Lafayette, one of the White Mountains in New Hampshire, was covered with snow on the 16th ult.

Applications have been made to the Grand Lodge of the United States for charters of Odd Fellows Lodges in Oregon, Honolulu, Oahu and the Hawaiian Islands.

The human brain is the twenty-eighth of the body, but the brain of a horse but a four-hundredth.

The name of the democratic candidate for governor of Georgia, is George Washington Napoleon Bonaparte Towns.

The waters of the Red sea appear to be thirty-two feet higher than the Mediterranean—and the Gulf of Mexico is twenty-eight feet lower than the Pacific.

The sea is to the land, in round millions of square miles as one-hundred and sixty to forty, or as four to one.

The North Adams Railroad through the swamp at Lanesboro, sunk again on Monday week for the third or fourth time.

A Telescopic Comet was discovered by a lady of Natchez (says the Baton Transcript) on the morning of the 1st inst., in the Constellation Cepheus. It is now visible to the naked eye.

The English committee on the China trade states that the amount of manufactured goods imported by China from the United States is about \$270,000, say \$900,000.

The population of Jersey City is 5,322, being an increase of 444 in one year.

### The Divisibility of Matter.

At the first step we take in geological inquiry, says the Rev. Dr. Buckland, we are struck with the immense period of time which the phenomena presented to our view must have required for their production, and the incessant changes which appear to have been going on in the natural world; but we must remember that time and space are great, only in reference to the faculties of the being who notices them. The insect of an hour contrasting its own ephemeral existence with the flowers on which it rests, would attribute an unchanging durability to the most evanescent of vegetable forms, while the flowers, the trees, and the forest would ascribe an endless duration to the soil on which they grow; and that unassisted man comparing his own brief earthly existence with the solid framework of the frame work he inhabits, deems the hills and mountains around him coeval with the globe itself. But with the enlargement and cultivation of his mental powers, he takes a more just, comprehensive and enlightened view of the wonderful scheme of creation, and while in his ignorance he imagined that the duration of the globe was to be measured by his own brief span, and arrogantly deemed himself alone the object of the Almighty's care, and that all things were created for his pleasure and amusement, he now feels his impotence, entertains more correct ideas of the mercy, wisdom, and goodness of his Creator; and while exercising his high privilege of being alone capable of contemplating and understanding the wonders of the natural world, he learns the most important lesson—to doubt the evidence of his own senses until confirmed by patient and unceasing investigation.

"Where is the dust that has not been alive?" The remains of organic existence, tested in the medium and other territories, conduct us from the colossal and imposing to the minute and microscopic; for beds occur entirely composed of the fossil relics of animalcules—these infinitesimal forms now present in our lakes, rivers, and streams, invisible to the unaided sight, whose perfect organization places them among the wonders of the creation. They were formerly supposed to be little more than mere particles of matter endowed with vitality; but Ehrenberg has discovered in them an apparatus of arteries, intestines, teeth, different kinds of glands, eyes, nerves and organs of reproduction. Yet some of the smallest are not more than the 24,000th of an inch in diameter, the thickness of the skin of their stomachs not more than the 20,000,000th part of an inch a single drop of water having been estimated actually to contain 20,000,000 individuals. Not less astonishing is their power of multiplication, an individual of one species increasing in ten days to 1,000,000, on the eleventh day to 4,000,000 and on the twelfth day to 10,000,000; while, of another kind, Ehrenberg states that one individual is capable of becoming, in four days, 100,000,000,000. To this distinguished naturalist we are indebted for the description of the fact that ages ago our world was rife with these minute organisms, belonging to a great number of species, whose mineralized skeletons actually constitute nearly the whole mass of the same tertiary soils and rocks several feet in thickness, and extending over areas of many acres. Such is the *Palæodolomite*, or polishing stone of Berlin in Bohemia, which occupies a surface of great extent, probably the site of an ancient lake, and forms slaty strata of fourteen feet in thickness, almost wholly composed of the silicified shells of animalcules. The size of a single one, forming the polishing stone, "amounts upon an average, and in the greatest part, to one-hundred-and-eighty-eight of a line, which equals one-sixth of the thickness of a human hair, reckoning its average size at one-fifty-eighth of a line.

The globules of the human blood, considered at one-third hundredth is not much smaller. The blood globules of a frog are twice as large as one of these animalcules. As the Polischstein of Berlin is slaty, but without cavities, these animalcules lie closely compressed. In round numbers, about 23,000,000 would make up a cubic line, and would, in fact, be contained in it. There are 1728 cu-

bic lines in a cubic inch; and therefore a cubic inch would contain, on an average, about 39,000,000,000 of these animals. On weighing a cubic inch of this mass, I found it to be 230 grains. Of the 41,000,000,000 of animals 170,000,000 are in a grain; or the silicious shield of each animalcule weighs about one-hundred-and-eighty-seven-millionth part of a grain." Such is the statement of Ehrenberg, which naturally suggests to the reflection of the theologian, derived from a comparison of the telescope and microscope:—"The one led me to see a system in every atom; the other leads me to see a world in every atom. The one taught me that this almighty globe, with the whole burden of its people, and of its countries, is but a grain of sand on the high field of immensity. The other teaches me, that every grain of sand may harbor within it the tribes and families of a busy population. The one told me of the insignificance of the world I tread upon. The other redeems it from all insignificance.

### Plummer's and Whitney's Projects for a Rail Road to the Pacific.

Plummer's first application to Congress was in 1828, when an appropriation was made, and the survey commenced. His plan is to divide the route (of land) into twenty millions of shares, at \$5 each; and every body offered the opportunity of securing one, on paying an instalment of 50 cents. Directors to consist of one for District of Columbia, and one for each State or Territory.

Whitney first appeared before Congress in 1835, asking for a grant, equivalent, at minimum price, to about one hundred and twenty millions of dollars, to be made to himself, he to be the sole manager of the whole work, and to own all the land that remained after completion of the Road; the Road to be his for twenty years; and on payment then of 16 cents per acre, for the land, the Road to be his forever.

### The Yankess.

You can always tell a Yankee by the jack-knife in his hand, or the cigar in his mouth. The Yankess are curious characters. To-day they are swapping horses, and to-morrow building railroads; this hour in the gutter and the next seated in a palace. Their energy knows no bounds. This month you may find a Yankee on the waters of the Penobscot heart and soul engaged in the logging business; a quarter of a year hence you will hear of him navigating the Ohio. Let a year pass, and you may learn of him in Constantinople.

Change appears to be written in the face of a Yankee. He is never contented. If he is best-black or a clam-digger, ten to one that you will find him at the bar or in the pulpit. If educated for the ministry, he may be found teaching at some conspicuous corner. If his father puts him to a mechanical trade, he will not be contented unless he sets up for himself in some mercantile business. To-day he is one thing and to-morrow another. He will dig gardens, saw wood, teach school, preach, or even edit a newspaper, if necessary for a support; but he will not be idle.

### A Lucky Escape: Tragicomedy Thrilling.

Last week while one of the workmen was engaged in cleaning the hall on the State House steps, the scaffolding on which he stood gave way. The crowd on Chestnut street were watching the whole operation, were speechless. Down—down he came—but just midway, with great presence of mind he pulled out his knife and stuck it in one of the pillars of the belly with sufficient force to sustain himself by it, until he was rescued from his perilous situation.

Ransom was written for the cane knife, which is made of a very tough piece of India rubber.

A Boston company are negotiating for the falls in Bedford, on the Androscoggin river, for manufacturing purposes. The water power is not perhaps surpassed in the State, and it is said the company intending to improve it can command a capital of two million dollars.

### The Cricket Steamboat.

Owing to the great success created by the explosion of a steamboat called the Cricket, on the river Thames at London, a number have made enquiries regarding her engines, &c., as explosions have not been so common in England as in our own country. For the last few years, however, our steamboats have secured for themselves a superior character, for while they are the fastest in the world none are more safe or more successful.

The Cricket was one of a line of boats belonging to the London Penny Steam Boat Company. She was fitted with engines built by Jones & Co. of the Greenwich Iron works, and had engines of W. G. & Co.'s double cylinder kind, or oscillating engines. The steam was used at a higher pressure than in the ordinary condensing engines and was first conveyed to a small cylinder, when after having exerted its direct pressure upon the piston, it passed to a larger one where it acted expansively in conjunction with the vacuum in the condenser, in a degree dependent on the ratio capacity of the two. The expansion of the steam was carried on gradually and these engines were considered very superior, as they only consumed 4½ lbs. of coal per horse power in an hour. Her average speed was 14 miles an hour and her horse power 55,000 lbs. register, double the common register. Her side valves were of the three ported kind worked by a rocking shaft placed in the bearings of the cylinder centers. It is supposed that the cause of the explosion was some defect in the operation of the valve connecting the condensing and high pressure cylinders.

### English Quarters.

Many persons do not clearly comprehend the term "Quarter" as applied to grain in England. It is this: A ton is 2,240 lbs., a quarter of that is 560 lbs., and this is the weight of the British or Imperial quarter of wheat. The U. S. Standard allows 60 lbs. to the bushel, the British 60 lbs., thus 8 x 70 = 560. A bushel of wheat in the United States is equal to 6.7 lbs. of an English bushel, and a British quarter of wheat is equal to 91 U. S. bushels of 60 lbs. each.

England's war debt is nearly 800 million pounds sterling! Her former wars now cost the people nearly thirty millions annually besides the current cost of the army and navy.

### A Bare House.

Mr. Barnum's House which seems to be a compound of Moorish, Gothic and Turkish architecture, attracts a great many visitors. An English gentleman who was here lately, declared that he had come 2,000 miles for the purpose of taking a look at the thing. Probably he was an artist, employed for a London publication. We believe there is nothing in England, or indeed in Christendom, resembling this edifice, excepting the Brighton Pavilion, built by George IV. The cost of the structure and grounds will be some \$50,000.

### Grass and Beauty.

Beauty, says Lord Kaimor, "is a dangerous property, tending to corrupt the mind of a wife, though it soon loses its influence over the husband. A figure agreeable and engaging which inspires affection without the certainty of love, is a much safer choice. The grasses lose not their influence like beauty. At the end of thirty years, a virtuous woman, who makes an agreeable comfortable companion, charms her husband perhaps more than at first. The comparison of love to fire holds good in one respect, that the fiercer it burns the sooner it is extinguished.

### Advertisements.

A curious example of the ingenuity of the advertising spirit is given by a French Paper. A mercantile house at Berlin has proposed to the various railway companies of Germany to supply all their carriages with silk blinds gratuitously. They simply propose to restore to themselves the right of changing the blinds as often as they may please; and they require the companies to engage themselves not to accept during fifty years, either for money or gratuitously, any blinds but theirs. Their object is to cover the blinds with advertisements.

A lady fortune-teller of Wilmington, Del., has retired from business with a handsome fortune.

### Popping the Question.

Some writer who takes the Subscript of *Jeremy Shert*, then gives his experience on this subject. *Jeremy* has been "about," and is "one of 'em," &c. &c. &c.

"It will pop itself. It's nonsense thus leading young folks a helping hand—take my word for it, all they wish is to be left alone—and if there be any confounded youngsters about, let them be put in bed or down—let it don't matter a fig which. If *Jeremy* has not no tongue, but a fiery eye, and I where is the youngster that can't tell whether a girl loves him, without a word on her part? No one admires modesty more than I do, but the most delicate angel of them all won't disguise her little heart when you're alone with her. A blush a sigh, a studied avoidance of you in company, and a low, thrilling trembling of the voice at times, when no one else is by, tell more than the smiles of a thousand coquettes. Ah! you needn't, *Angie*, shake your head, you'll know soon enough—but if you fall in love, as you will, my word on it, the very echo of one *Shert* will make your heart flutter like a frightened bird."

### Depth of the Ocean.

At the annual meeting of the Association of Am. Geologists in Boston, Commander Wilkes, U. S. N., made a communication upon the subject of the depth and saltness of the ocean. The maximum depth has never been attained. Capt. Ross sounded 4,000 fathoms, about 37,000 feet, and got no bottom. There are great difficulties attending deep soundings. Experiments show that the great valleys of our ocean run at right angles to the ranges near our coast. The basins of the Southern hemisphere dip and rise alternately from the equator towards the pole, causing very unequal depths of water.

Experiments were made by Captain Wilkes upon the penetration of solar light. A pot painted white was let down into the water, and the point of invisibility marked—upon taking it out, the point of visibility marked, and the two were found to vary but a fathom or two. In water at 35 degrees the pot disappeared at six fathoms—in the Gulf Stream, at twenty-seven fathoms—just outside of it, at twenty-three fathoms.

### A Belle.

A model struck in honor of Mr. Pitt, without date, which was found about six years since in the Baptist burial ground in Gold street, was presented on Tuesday evening to the Historical Society of this city, by a member. On one side of this interesting relic is a portrait of Mr. Pitt, with the name of "Gustavus Pitt" inscribed thereon, and on the other the following words:—"The man who having saved the parent, plodded with success for her children."

### Weight of Grain.

The following table, exhibiting the number of pounds to the bushel, of the different articles enumerated, may be of service to many.

Wheat, 60; corn 56; buckwheat seed, 52; salt 50; barley, 48; castor oil beans, 36; hemp seed, 44; timothy seed, 50; oats, 21; bean 26; blue grass seed, 14; peaches (dried) 24; apples (dried) 22; stone oval, 20.

### Mechanics for the War.

Forty-three mechanics, 4-stymen of blacksmiths, carpenters, saddlers, armers &c. arrived in this city from Pittsburgh, on Saturday. They are in the employment of the government, and receive about \$40 per month, and one ration per day. They are a fine looking intelligent set of men, and we are gratified that out of the evil of war comes the good of giving them employment and high wages. They leave for their destination either to-day or to-morrow.—*Cincinnati Paper*.

In a Boston paper we find an account of the doings of the meeting of the Naturalists there, which say that it has been long known that two rays of light may be so thrown on each other as to produce darkness. Prof. Henry showed that two rays of heat may be so combined as to produce cold.

Most mountains prevent their precipitous faces to the sea and their shores to the land,





## New Inventions.

## Brewster's Reversing Plough.

We noticed a working model of Mr. Irwin Brewster's reversing side hill plough at the Fair of the American Institute, and it gave us great pleasure to perceive that it was most successfully viewed by practical farmers. We noticed this invention some time ago in the *Scientific American*, Vol. 2, and since that period, Mr. Brewster has experimented with his plough, and found it to be a great improvement over any kind of side hill plough now in use. Mr. Brewster uses a strong spiral spring for clenching and unclenching the mould board, so that with the utmost ease it can be reversed and plough backwards. We shall be able at some future period to give an engraving of this useful and ingenious plough. Measurements are in progress to secure a patent.

## Capstan Pump.

Mr. James F. Andrews, of Boston, has invented a capstan pump for nautical purposes, by which a capstan is made to be a pump and to be used as a capstan alone, or both at the same time, without any change of motion. It has the appearance of the capstans now in general use in coastwise ships—possessing, however, either the same power, or eight times as much, by a reversal of power. The pumps, four in number, are worked by the capstan. The motion, or stroke of the pump, is obtained by four inclined planes, attached to the circumference of a drum below, but connected with the capstan. The great utility of this invention is obvious upon philosophical principles, when it is considered that it endows the three mechanical powers of the lever, the wheel, axle and inclined plane, combined, working with greater ease and equal velocity four powers at once—of greater capacity than those now in common use by the lever alone. With this invention, it is said, two or three men may without fatigue discharge from a vessel out air tight, from 1500 to 2000 cubic feet of water per hour.

## Oscillating Window Shade Retainers.

Mr. George H. Menden, of Charleston, S. C., has invented a new and beautiful method of suspending and operating window shades. The improvement consists in having small oscillating metallic blocks fastened on the ends of the roller and screwed into the window head, fitting nicely, so that they will swing with the shade and allow the ends of the window to move freely up the full length of its place, and also allow the shades to close perfectly.

## Sheet Lead Machine.

Mr. John Robertson of Brooklyn, N. Y., has invented a new machine for making sheet lead, which can also be applied for making other soft metals into sheets. He uses a die of the form of the sheet to be made and by a peculiar manner of pressure on the surface the metal is made to rise in sheets. The die, we believe, is in a different chamber from the metal, and the lead is made to pass through a space in it. A patent has been secured for the invention.

## New Water Wheel.

A new horizontal water wheel has been invented by William Lamb, of Rome, Oaxida Co., N. Y., whereby the water is introduced by a trunk forming part of another wheel, to give direction to the water. We have not yet been informed as to the advantage gained by this combination, if there can be any.

## Improvement in Propelling Screw.

Mr. James Montgomery, of Memphis, Tennessee, now in this city, has invented an improvement on the Archimedes screw for propelling vessels, whereby it is much strengthened and he has surrounded the whole with a casing which protects the screw from injury and secures a more perfect action.

## Twisting Withers.

Mr. Jonathan Smith, of Frankfurt, Maine, has invented a new machine for twisting withers, whereby the process is shortened and a much better article made. He uses a kind of wheel for straining the fibres of the pole to be made into withers, and while the withers are revolving and twisting the withers at one end, he uses power jaws for holding and securing the withers at the other end.

## Selfless Wheel.

Among the numerous ingenious inventions of the present day is a selfless wheel for carriages, patented by Mr. Andrew Smith, of England, patented iron and wire rope manufacture. The latest properties of this wheel are not obtained at the expense of appearance, nor by any additions which detract from the elegant appearance of the vehicle. The

tire is composed of numerous fibres of galvanized plate iron lapped together, and the galvanizing is the same, and which, when running over the stones, will be more noise than if running on a surface of lead. The nave or hub of the wheel is lined with an elastic substance, which makes a perfect stifling box, and thus prevents any noise from the axle, and on the whole must be an important addition to the comfort of carriages and stage passengers.

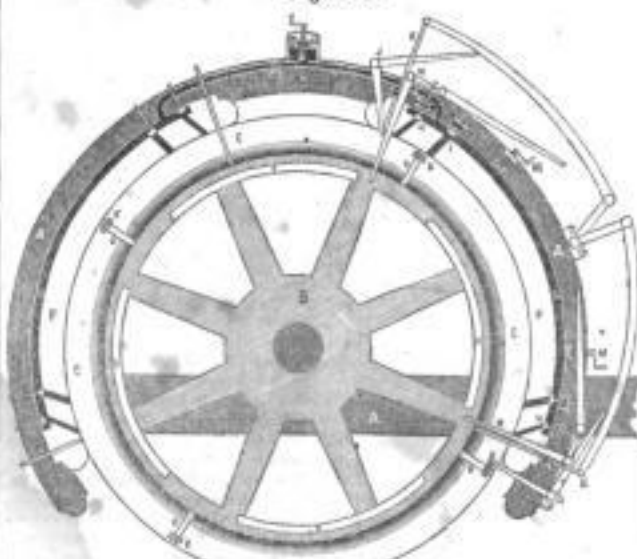
## Propelling.

An Engineer in Glasgow has effected an invention by which vessels on rivers and canals can be propelled at about the same speed as steam carriages on railways, and at about half the cost.

The above we have taken from one of our London Exchanges. The nature of the invention is not described.

## SMITH'S ROTARY ENGINE—Vertical Sectional View.

Figure 2.



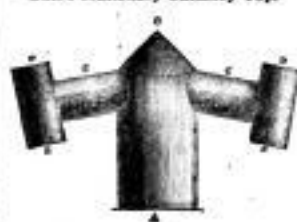
DESCRIPTION.—A, is the cast iron frame referred to in fig. 1. B, is the wheel, the spokes or arms of which will be observed to be something like those of a water wheel. C, is a groove in the outer surface of the wheel, and D, partitions in said groove. F, is a concave fitted to the outer surface of the wheel, and G, is a steam chest in the concave. H, is a poppet valve and steam passage into the groove. I, is an escape valve. J, is a reflecting lever to raise the drop valve or gate K, out of the groove C. K, is a cog to reflect the lever J. L, is a throttle valve and steam pipe, regulating the steam to the steam chest. M, is an adjusting screw for the purpose of screwing up the concave, if it is unseated by expansion. N, is another reflecting lever to raise the poppet valve H, and let the steam into the groove, and O, is a projection or cog, to raise the reflecting lever N.

OPERATION.—One of the partitions D, having passed under the concave F, the drop K falls a little distance behind the partition D, leaving a small space into which the steam is now admitted through the passage H. The drop K, being stationary, the partition D, moves off, thereby giving motion to the wheel E.

The inventor of this Rotary Engine is Mr. G. Smith, of New Orleans, and we would observe, in extending his own description, that he proposes to use the steam expansively, and for that purpose he divides his wheel into four chambers, packed on the periphery and geared on each section as duplicates of the above valves, levers, &c. The whole steam power is therefore to be understood as applied to the edge of the wheel. His wheel is to be broad, cast and then grooved, to make it more solid and capable of being better packed. It is to be fitted in a frame and run on gudgeons like a water wheel.

horizontal draught tubes, on the ends of which are fastened perpendicular tubes, which have two openings each, D E. The merit claimed for this invention, is the impossibility of the chimney ever smoking by the smoke being blown down the chimney by the wind. If the smoke is blown down at D, it will pass out at E, or if by the strongest wind, it is driven back through C, it will pass over the top of the main flue A, as the conical top B is hollow, and pass out at the other side by the other flue C. These chimneys can be applied to steamboats and locomotives, by fixing a screen on the openings to keep back sparks, or having a screen on D, and the tube E coming down some distance to let the sparks fall into a receptacle. Further information regarding this chimney top, can be had by communicating with P. Napier & Co., No. 53 Stone street, this city.

## Dill's Stationary Chimney Top.



This chimney top is the invention of Mr. Thomas W. Dill, of this city, and after a fair trial of its capabilities, it has answered the purpose intended as well as the inventor considers himself fully justified in saying that it is the best chimney top ever invented. It is composed of five pieces, which are all made of different pieces and joined together, or cast all in one piece of iron or clay. A, is the main draught tube which is set on the chimney, and B is a conical top. C C, see the branch

A block of copper ore from Pittsburgh, Pa., is being exhibited in Liverpool, which weighs nearly two tons.

LIST OF PATENTS  
ISSUED FROM THE UNITED STATES PATENT OFFICE.

- For the week ending Oct. 26, 1867.  
To John T. Savage, of New York, for improvement in Chromatic Locks. Patented Oct. 2, 1867.  
To Hiram Berdan, of Plymouth, Michigan, for improvement in Grain and Straw Separators. Patented Oct. 9, 1867.  
To Horatio Ames, of Falls Village, Conn., for improvement in machinery for twisting and rolling iron, (for which a patent was granted in England to Geo. Wetherell, of New York, for the benefit of the aforesaid Horatio Ames, under the title of "Improvements in manufacturing or working iron for various useful purposes," which patent bears date the 25th day of July, 1851.) Patented Oct. 9, 1867.  
To John T. Barr, of Troy, New York, for improvement in Cooking Stoves. Patented Oct. 9, 1867.  
To Lewis Kirk, of Reading, Penn., for improvement in Jointed Pipes for Steam, &c.—Patented Oct. 9, 1867.  
To Simon Broadbent, of New York, for improvement in Furnaces for the manufacture of Steel. Patented Oct. 9, 1867.  
To William McAdams, of Albany, New York, for improvement in measuring Book Covers. Patented Oct. 9, 1867.  
To Frank Cheney, of Manchester, Conn., improvement in machinery for doubling, twisting and reeling thread. Patented Oct. 9, 1867.

## INVENTIONS AND CLAIMS.

## India Rubber Shoes.

Invented by Robert Story and Thomas Hopper, of New Brunswick, N. J. Patented 7th August, 1867. What they claim as their invention and secure by letters patent, is the attaching leather soles to metallic rubber shoes by means of a sole and heel of cloth prepared with metallic gum on the inside, for the purpose of adhering to the sole in the process of curing in the heated chamber. And when cured they are ready for attaching the leather sole and heel as named in the specification.

## Water Wheels.

Invented by Horace Parsons, of Houston, Illinois. Patented August 7, 1867. What he claims as his invention and secures by letters patent, is the making the wheel with buckets turned with about their depth parallel with the axis of the wheel, and tangential to a circle smaller than the hub (or therabouts) and the other half at an angle therewith, when this is combined with a scroll abut on one face for the admission of the water, and a retaining plate on the other provided with a hole for the discharge of the water opposite the end of the scroll.

## Improvement in making Sashboards.

Re-invented by Francis Durand and Gustave Parquet, of Paris, France, for improvement in making Sashboards and other hollow articles of Leather. Patented Oct. 23, 1866. Re-issued August 7, 1867. They declare that they do not now claim the manner of constructing this particular machine, but that the same has been described for the express purpose of showing to the workmen the practical mode of procedure in effecting such manufacture; but what they do claim and secure by letters patent, is the manner of making articles of leather, such as are designated; that is to say, the making them without seams or joints, either by cement or otherwise; the leather of which they are made being split as to leave s-d edges as described. And this they claim irrespective of any particular machine or apparatus by which the splitting of the leather may be effected.

Sashes are bound in slate, and floor and iron in marble.



NEW YORK, OCTOBER 16, 1847.

## Geology System Makes.

No science engages more attention at the present day than Geology, and as it is an interesting study we present a brief sketch of many different opinions relative to the earth's history, which will be both instructive and entertaining.

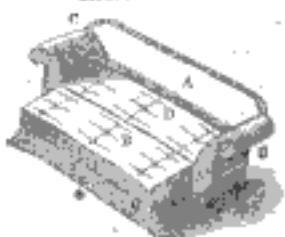
Kepler, the German Astronomer, believed the earth to be a great natural, and many other philosophers entertained as extravagant notions. Barnet, the author of the Sacred Theory, believed that the earth before the flood, was one beautiful plain without either mountains or seas, without any difference in seasons. "For its equator was in the plane of the ecliptic and turned directly opposite to the sun, enjoying a perpetual and unvaried spring." He also believed that the earth was like a bath shell, a coasted crust, enclosing an abyss of waters, which for the crimes of the antediluvians, God caused the shell to crack and fall in and the waters burst forth and engulfed the original inhabitants, with the exception of Noah and his family. Woodward, a better naturalist than Barnet, believed that the earth was composed of different layers like an onion, each layer occupying a place according to its specific gravity. Whiston, a Quaker, believed that the earth was originally a comet, and that the creation of the earth as recorded in Scripture relates to the exact time when God placed it, as a planet, in our system. We believed that on the change of the motion of our comet Earth its form was changed into regularity and beauty, by all the regular parts falling into their proper places, leaving the centre of the earth full of great heat which the comet received in its approach to the sun, and which he thought would continue 4000 years. He believed that the deluge was caused by the fall of a comet, and calculated with apparent certainty the exact day when this took place. Buffon believed that the planets, our earth among the number, were once parts of the sun, and were struck off by contact with a comet, like sparks from the red iron, under the hands of the blacksmith. At first, he says, "our globe was a ball of liquid fire, but as it was driven from the sun it cooled and spun like a ball rolling on the ground and thought that motion on its axis which flattened it at the poles and bulged it at the centre." Buffon also believed that all the shells found on the tops of the highest mountains and in the hardest rocks, were deposited by the sea at different periods of time, and such is now the common opinion; and Geology taking cognizance of these changes in Nature, accounts for the same by two causes, the degenerating or wearing away causes, and the elevating cause. Currier reduced Geology to its present beautiful arrangement. He was undoubtedly the greatest naturalist since the days of Linnaeus. Geology takes cognizance of the materials of the earth and of the order in which they are arranged and the causes which have effected that arrangement. There are two great classes of strata; the non fossil and the fossil. The non-fossil Geologists say existed before any living thing and consequently no organic remains are found in them. The scientist, by this arrangement can enable us to tell by what rocks are seen on the surface of the earth to judge of the strata underneath. Thus, when granite is found on the surface, so can will be found underneath, as granite is a primary, and a superficial strata. We are not able to discuss this subject at any length, but as the Association of American Geologists have just closed their annual meeting, we perceive that the huge round earth called *bolleto*, found throughout different parts of our continent, have engaged a large share of their discussions, in accounting for their origin, where they have come from and by what means. It appears that the theory

of their transportation is the age of Drifts. That this continent was once the bed of the sea and that their hollows were brought from the North Pole by icebergs. This theory has a drift foundation, and we present that we will be able to account for these hollows when we account for the original peopling of our continent. In alluding to any subject, we have always the object of practical benefit in view, and we are of opinion in reference to Geology and system makers, that considering the many splendid minds engaged in the pursuit of Geological knowledge, that too much time is wasted in the study of that which can do us no good—God alone can tell how the earth was created; but in regard to the different strata of the earth, and their order of arrangement, the science is beneficial and beautiful as a study to every man.

## New Shipbuilding.

A project has recently been started for connecting New York with the interior by a ship canal. It is said that all New York will have to do to open a communication for ships of four thousand barrels freight from base to Chicago is to enlarge her lake canal lines. They to Lake Champlain and the Canadians will do the rest. With the ocean on the side and the Erie railroad and Erie canal on the other, and her northern ship canal giving her a ship communication with the Great Lakes, New York would enjoy a position for a freight commerce such as no city ever enjoyed before.

## Steel's Red Beds.



The above is an engraving of the beautiful Red Bed of Mr. Stone, of Cheltenham, Mass., which we have noticed before in the Scientific American. A, is the small back of the shaft, and C, C, the small sides. D, is the primary bed or seat, and B the movable one, which is now represented as being open. B rests upon three feet when spread out, and it can be easily lined and set upon D, when B becomes a sole seat, and then lift B, or rather slide it out to its place, as now seen by the above cut, and D B, is a double sole bed. It is a very convenient and useful invention and practically operates well. It will be observed that there are two spring seats combined in this sole. The inventor, we believe, wishes to dispose of his patent right.

## The Captain Pump.

While examining this pump at the Fair, a friend suggested to us the great superiority of Winder's pump, an engraving of which appeared in No. 2 of the present volume of the Scientific American, over every other pump for nautical purposes. There would be no fear of lower valves getting out of order, as it has none, and, from any depth of hold, it could draw up the water from the ship's well as clean as a whistle.

## American Railroad Iron.

The Philadelphia North American says that there will be sixty thousand tons of railroad iron manufactured in this country during the present year, which will be equal in quality to any imported iron. The value of this quantity, at present selling prices, will be upwards of four millions of dollars. Pennsylvania, alone, furnishes one-half of the pig iron, and more than one-half of the railroad iron made in the United States.

## American Shipping.

The intrinsic value of the shipping, (not including steamships, steamboats and schooners) belonging to the United States, is put down at \$13,000,000 as a moderate estimate. The number of persons immediately interested, is stated, at a fair calculation, to be 1,175,000.

The highest peak of the Rocky Mountains is 15,500 feet, and James' peak is 15,800 feet.

## Electrotype and Electro Gilding.

No. 2.

Copper can be deposited on metals through the electric agency, as noticed in last number, by making these metals of a negative character. The mode is made as follows. It is well known that wax is a non-conductor, and would be well adapted for moulds but for its non-conducting properties. Mr. Murray and M. Jacobini, however, discovered that if wax was covered with blacklead it then became conductor, hence they made wax moulds and covered the surface of them by a camel hair brush with the blacklead, breathing on the moulds to make the lead adhere. This mould on wax (they do better when there is a counter together,) is submitted to the action of what is called a constant battery, which will be better understood by the following cut.

FIG. 2.



A, is an outside cylinder of copper, and B is a zinc rod sealed with mercury, separated from the outside cylinder by an inside cylinder made of plaster of Paris or some porous substance of like nature. Into the outside cylinder is placed a solution of blue vitriol (sulphate of copper), and into the inside cylinder a dilute solution of sulphuric acid. If a copper wire be then fixed into B by one end, and if on the other end there is a mould made of wax, as described, and that end be placed in the solution of sulphate of copper, the electric fluid from the zinc will in a short time separate the copper from the acid and deposit it on the mould as correctly as if by the hands of an engraver. A quantity of crystals of the sulphate of copper is placed generally on a small copper shell near the top of the outer cell to feed the gradual descent.

The wax for moulds is the same kind as used for candles, and it is to be melted for a mould and the metal, as article to be copied, must be made warm to prevent the sudden chill of the wax when poured on, and it must be surrounded with a ribbon of pasteboard. The surface of the metal should then be slightly covered with olive oil and the wax poured on. When it is allowed to cool gradually and when perfectly cool, the metal is to be slightly warmed with a candle to expand it, and then carefully removed from the wax. This mould then is to be treated with blacklead, as described, only on the face of it, and fixed in the end of a copper wire, by slightly heating the wire by a candle flame taking care to polish it well previously. To amalgamate the zinc end of the battery, place some mercury in a saucer and pour on it some water and sulphuric acid and brush the liquid and mercury over the surface of the zinc rod till it is covered with a bright coat, when it is rendered fit for constant action.

## March of Locomotion.

In a prospectus issued by the promoters of the Manchester and Liverpool Railway in the year 1825, it was stated, amongst the many advantages set forth, that the "average time of conveyance by water is 26 hours—by railway it will only be five or six hours." Since that time, whatever by many deemed an impossibility, has really been brought to pass; and now the journey between the two places is performed in an hour. The distance between Manchester and London may now be traversed in the time in which it was completed would occupy a train in going to Liverpool; and yet we are amused, by practical and scientific men, that railway travelling is only in its infancy.

## Another Use for Ether.

From a communication in the last number of the Boston Medical and Surgical Journal, it appears that a case of "delirium tremens" has been successfully treated by giving ether. The patient was an Irishman, named Perry, a man of sanguine temperament and of a strong and robust frame. He has been intemperate for many years.

## Electricity—Kite's Invention.

There is a proposed plan in the British Engineer, and to be invented by a Mr. Kite, for making the resistance of the atmosphere subservient to locomotion. The end in view is said to be attained by the guidance of the rush of air along a series of deflected plates on the sides of the ash box which is divided into these longitudinal chambers, so that when the engine is in motion, and exposed to the resistance or negative rush of the air, it impinges on these plates on its passage to the furnace and passing through the smoke pipe propels the engine with great force.

This project has been copied in some papers with the greatest gravity, as being a wonderful invention, and has been compared to the compressing pendulum and increasing the opposing atmosphere.

In our opinion there is only one thing wanting to complete or make perfect the invention, and that is, some kind of buoy balloon, which can be attached to the locomotive, and in its state one until there is danger of running off the track (which will be often enough if the impinging plates get out of line, or are heated more on one side than the other) when by a pneumatic pump the engine can fill the balloon buoy with air and the train will be lifted over hollows and rises without carrying a strain for bridges or a fig for books.

## Remarkably Coppery.

The editor of the Princeton Whig lets the public into a little knowledge of the Princeton Copper Mines. He has quoted himself by personal observation that the "ore" of these mines can never be productive. He says that what the miners term copper and sulphurated copper in these specimens, turns out to be an examination by scientific gentlemen, sulphate of iron, an article of little value. There is copper, perhaps, in part of the specimens, but not in that supposed to be the richest.

## War Weapons.

One thousand of Col's Patent Revolving Rifles have been made at Hartford, for the use of the U. S. Mounted Rifle Regiment. Each rifle is made to hold six charges, which can all be fired in as many seconds; and as they can be loaded very quickly, it is expected they will prove a terribly effective instrument of war. Gen. Taylor has appeared them.

## A Ship Canal from Montreal to the Lakes.

A plan is now in contemplation in Canada, to connect Montreal with Lake Champlain, by a canal which, leaving the St. Lawrence at Cornwall, would lead through a level country across a distance of only 13 miles to St. John's. The present head at the steamboat navigation of Lake Champlain.

## Negro Suffrage.

The people of Connecticut have defeated the proposed amendment to the Constitution, providing that colored men may vote, by a very large majority.

## Scientific American—Grand Volume.

The second volume of the Scientific American, bound in a superb manner, containing 416 pages choice reading matter, a list of all the patents granted at the United States Patent Office during the year, and illustrated with over 300 beautiful descriptive engravings of new and improved machines, for sale at this office—Price \$4.75. The volume may also be had in sheets, in suitable form for mailing—at \$2.

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## Useful Hints about Bed-rooms.

Their small size and their lowness render them very unhealthy; and the case is rendered worse by close windows and thick curtains and hangings, with which the bed-room is often so carefully surrounded as to prevent the possibility of the air being renewed. The consequence is, that we are breathing vitiated air during the greater part of the night; that is, during more than a third part of our lives; and thus the period of repose, which is necessary for the restoration of our mental and bodily vigor, becomes a source of disease. Sleep, under such circumstances, is very often disturbed, and always much less refreshing than when enjoyed in a well-ventilated apartment; it often happens, indeed, that such repose, instead of being followed by renovated strength and activity, is succeeded by a degree of heaviness and languor which is not overcome till the person has been some time in pure air. Not is this the only evil arising from sleeping in ill-ventilated apartments. When it is known that the blood undergoes most important changes in its circulation throughout the lungs by means of the air which we breathe, and that these vital changes can only be effected by the respiration of pure air, it will be easily understood how the healthy functions of the lungs must be impeded by inhaling for many successive hours the vitiated air of our bed-rooms, and how the health must be effectually destroyed by requiring impure air, as by living on unwholesome or intoxicating food. In the case of children and young persons predisposed to consumption, it is of still more urgent consequence that they breathe pure air by night as well as by day, by securing a continuous renewal of the air in their bed-rooms, nurseries, schools, &c. Let a father, who has been made anxious by the sickly looks of his children, go from pure air into their bed room in the morning before a door or window has been opened, and remark the state of the atmosphere, the close, oppressive, and often fatal odor of the room, and the way come to wonder at the pale, sickly aspect of his children. Let her pay a similar visit some time after means have been taken to secure a full supply and continued renewal of the air in the bed room during the night, and she will be able to account for the more healthy appearance of her children, which is sure to be the consequence of supplying them with pure air to breathe.

## The Home Telescope.

The capacity of this instrument is wonderful. Such is its power that if a star of the first magnitude were removed to such a distance that its light would be three millions of years in reaching us, this telescope would nevertheless show it to the human eye. Is it to be wondered at, then, that with such an instrument grand discoveries should be made? It has been pointed to the heavens, and, although in the beginning only of its career, it has already accomplished many mighty things. There are scientific spots in the heavens which have baffled all the instruments hitherto constructed, but this telescope resolves their true character completely. Among the wonderful objects which have been subject to its scrutiny is the nebula in the constellation Orion. I have had an opportunity to examine it. It is one of the most curious objects in the whole heavens. It is not round, and it throws off various lights. From the time of Herschel it has been subjected to the examination of the most curious instruments, but it grows more and more mysterious and diverse in its character. When Lord Rosse's great telescope was directed to the examination, it for a long time resisted its power. He found it required patient examination—night after night, and month after month. At length a pure atmosphere gave him the resolution of its constitution; and the stars of which it is composed burst upon the sight of man for the first time.—*Mechanics Magazine.*

In Leverett, Mass. a child of Peter Hubert Jr., of Boston cut the arteries of his arm with a knife, but was prevented from bleeding to death, by the presence of mind of his mother, in pressing the flesh above the wound, until the doctor arrived two hours after, and took up the arteries.

## A Singular Iron Man Petrification.

The Cincinnati Chronicle says that a gentleman brought into Portsmouth, from the Blount Furnace, Scioto, county, a part of an iron man, found in the ore bed? The part we saw was the foot and a part of the leg. Having been converted into iron by a gradual process, the mineral divisions, as between the toes, &c., were not visible; but the general outline of the foot and ankle were palpable. The spreading across the toes—the general outlines of the toes—the heel—ankle, &c.—were perfectly plain. We were told that the head and arms are still more perfect! There cannot be the least doubt of its having been a man. Nor is there much doubt of the manner in which it came in this condition. The body must originally have been petrified in lime; but of this there remains now a tiny the outside incrustation, which will crumble off. What was the man, is now iron. By some natural process the iron must have grown out of the lime, and here is a theme for Geologists! How did this change take place? If we are right, and the facts seem to leave no room for doubt, this Iron Man would afford one of the most beautiful subjects for a Geological lecture. The Iron Ore, in which it was found is called the Calcareous Formation. The process of its formation, would be an instructive study.

## Small Potatoes.

This term is so generally reproachful that the person or thing to which it is applied are placed in the lowest attitude. But even small potatoes should not be despised, as the following facts, which were related to us (says the Forthmouth Journal) by one of our townsmen who derived most profit from the proceeding fully illustrate:

Some years ago a gentleman visiting a farmer in Folland, Connecticut, took from his pocket a small intruder which somehow got in there at home. It was thrown out with a smile, and the farmer taking it in his hand to look at it, a curious little boy of twelve at his elbow asked what it was. "Oh, nothing but a potato my boy—take and plant it, and you shall have all you can raise from it till you are free." The lad took it, and the farmer thought no more about it at that time. The boy, however, not despoiling small potatoes, carefully divided it into as many pieces as he could find eyes, and put them in the ground; the product was carefully put aside in the fall, and seed for several hills was obtained for the next spring. The product was all kept for seed until, in the fourth year, the yield being good, the actual product was four hundred bushels! The farmer, seeing the prospect that the potato field would by another year cover his whole farm, asked to be released from his promise.

With the same calculation, prudence, and industry, how many who are disposed to regard the trifling things on which fortunes are built as too small potatoes to receive their attention would have been in independent circumstances if they had husbanded their small advantages! Small potatoes should not be despised, even though there be at first but a few in a hill.

## A Hungry Pelican.

One of our western exchanges concludes a pathetic appeal to his subscribers by enumerating what a piteous wretch. He asks for forty or fifty bushels of potatoes, one hundred bushels of corn, fifty heads of cabbage, some linen to make up shirts and stockings for himself and better half, half a dozen pigs, cotton cloth for under clothes, children's nightgowns, and all the cash they can spare. He says without the latter indispensable article, he cannot keep the wheels in motion.

What an unaccountably voracious fellow—How dare a printer appeal to potatoes, or think of wearing a shirt!

## A Chance for Emigrants.

The State of Arkansas invites emigrants to come and take lands which have been forfeited for taxes, and no payment will be required of them. The soldier upon proof of settlement will make a deed, which the supreme court has decided will be valid. The forfeited tracts comprise some of the finest lands in the State.

## Female Professorships.

A leading French paper has a series of able essays entitled "*Des Professeurs des Femmes*," showing the impropriety of employing at all in the education of girls, and the efficiency and superiority of female professors for those branches of instruction which are usually supposed to require male tuition. We translate a passage or two, which will show the drift of the articles we speak of: "The least reflection will be sufficient to show that the male professor, in a female seminary, if he is young, must at least take off attention from study, if he excites no other interest. If he is old and of very grave character, he inspires a sentiment of dread and repulsion which depresses emulation and chills the desire to please by proficiency. If he is debonaire in his manners, his pupils ridicule him, and are more amused with the man, than impressed by his lessons. The abuse which instructors have made of their access to the minds and intimacy of young girls who are secluded from all other male society, will appear in their varied instances to the memory of the reader, and the conclusion to be drawn from this is obvious. The objections to a celebration of female teachers are, it seems to us, trivial and unfounded. It is said that women have not force of character enough to inspire the necessary respect and control; that they lack firmness and consistency in their regulations; that masculine experience and dignity are necessary properly to restrain and instruct; and that female teachers are rarely furnished enough in their own education." With this glimpse at the material of the argument the readers of this Journal will be enabled to do justice to themselves and we leave it, merely suggesting that the question touches also upon another interest quite as important; the increase of vocations for the exercise of female industry.

## The Favorite Mexican Stimulant.

Every nation seems to intoxicate itself, and the Mexican boasts of the most abusive intoxication for the purpose among the discoveries of man. Pulque, the national beverage is the juice of the Agave Americana, fermented. The original process by which fermentation is produced is one which we shall not venture to detail; but the liquor obtained from the section of the plant is drawn up by the rude syphon, and poured into dressed cask-bins. The taste is mawkish, and the smell is noxious. Yet, to the Mexican, it is nectar and ambrosia together. Pulque is to him meat, drink, and clothing. He without it the world has no pleasures. The most remarkable circumstance is that it is without strength. Thus it wants the elixir of brandy, which may madden, but which at least warms; or aqua-vitæ, which the Pole and the Russian are said to drink as a qualifier of their indulgence in kail oil; but the Mexican, would rather die, or even fight, than dispense with his pulque, and if Santa Anna had not put his warriors on short allowance of the national liquor before his last battle, and promised them double allowance after it, he would probably have been, at this moment, on the Mexican throne.

## War on the Cotton Worm.

The Westville, Miss., Republican records a very interesting circumstance in what follows. After saying "we have life or no complaint of the worm at present," that paper of the 18th adds—"A little fly, called by some the 'ichneumon,' in consequence of its similarity between its habits and those of the Egyptian animal, seems to have taken the worm and crystal in hand, and devoted nearly all of them. This they do, we are told, by boring into the shell or crystal and eating its contents. Myriads of the crystal may be found in the cotton fields thus conditioned, and had it not been for this fact our fields would doubtless have been destroyed before now. What a war of Providence, and what an impressive example of a trust in its dispensations."

## Old Boots and Shoes.

Prosser blue is now manufactured extensively in Philadelphia by the burning old boots and shoes.

Oil of rock is the oil which swims on top

## The Palmyra Tree.

The Palmyra grows 100 feet high, with a stem perfectly straight. The wood though fibrous like the coconut tree, is more compact and will take a fine polish. Inside girthy. It is tried for building, but not furniture, as it cannot be sawed into planks. The leaves look like fans spread out. The fruit grows in clusters at the top, among the leaves, nearly round, and covered with a thin purple membrane. When the fruit is first found, the seed-shell is filled with a transparent substance which is viscous and elastic, like jelly, cool and agreeable to the taste. The fruit, on being pressed yields a thick juice of a reddish yellow, and of a strong flavor, looking like boiled and strained pumpkin. This is spread, half an inch thick, on mats and dried a few days in the sun, and stored for food. It keeps some months in this state, and is very nutritious, though to foreigners unpalatable. The seeds are burned in heaps in the earth, and after a few weeks, are found to have shot out an excellent root, of the spindle class, of the size of a small parsnip, which also furnishes much nutriment, is dried, pulverized and made into cakes, soap, &c.

The top of the tree is treated like that of the coconut. These two trees are put to a great variety of uses. The wood of the Palmyra furnishes stake and rafters for the houses, the leaves are used for thatch, fences, boats, mats, baskets, &c. Ropes as well as baskets and mats are also made from the strong mid of the Palmyra leaf, and the blossoms and fruit supply the people with a large part of their food.—It is supposed that the Palmyra furnishes means of subsistence to a fourth of the population.

## Quantity of Breath in Man and Woman.

The French are a most experimenting race, and their discoveries in arts and sciences, practically in advance of other nations. By experiments made at the Academy of Sciences, and arrived at by an ingenious species of trick being played over the face of the person whose breath was to be examined, it was ascertained that man gives out much larger quantity than woman and this difference is most striking between the ages of 16 and 40 at which latter period the quantity of carbonic acid given out by the male is double that of the female. In the male the quantity goes on increasing from the age of 8 years to 30, after which it begins to diminish; and, as a man becomes older and older, the diminution goes on in an increased degree. In old age the quantity is not greater than at the age of ten.

## The Rocks of Calvary.

In Fleming's Christology, it is stated that an unbeliever visiting the sacred places of Palestine was shown the cliffs of Mount Calvary. Examining them narrowly and critically he turned in amazement to his fellow travellers and said, "I have long been a student of nature, and I am sure the cliffs and rocks in this rock were never done by nature, or an ordinary earthquake; far, by such a concussion, the rock must have split according to the veins, and where it was weakest in the direction of joints; for this," said he, "I have observed to have been done in other rocks when separated or broken after an earthquake; and reason tells me it must always be so. But it is quite otherwise here; for the rock is split upward and across the veins, in a most strange and preternatural manner; and therefore," said he, "I think God that I came hither to see the standing monument of a miraculous power by which God gives evidence in this day of the Divinity of Christ."

## Hard of Hearing.

An old trick says an Albany paper, was played on the Sheriff at the present term of the court. He was shot for jurors, and made a doze in the street. He awoke a gentleman well known in town, with, "I want you in court for a juror." "No," replied the man, "speak a little louder." The Sheriff pitched his voice to a high key, "I want you for a juror." "Yes, yes," nodding his head very significantly, "it is a very fine day." The Sheriff taking him for a deaf man told, he had placed his thumb to his nose, and







The Motive Power of Coal and Zinc.

At the present moment, electro-magnetism as a moving power, is engaging great attention and study; wonders are expected from its application to this purpose. According to the sanguine expectations of many persons, it will shortly be employed to put into motion every kind of machinery, and among other things it will be applied to propel the carriages of railroads, and this at so small a cost, that expense will no longer be matter of consideration.

With a simple fume of spirits of wine, under a proper vessel containing boiling water, a small carriage of 250 or 300 pounds weight can be put in motion, or a weight of 50 or 100 pounds may be raised to a height of 20 feet. The same effects may be produced by dissolving zinc in dilute sulphuric acid in a certain apparatus. This is certainly an astonishing and highly interesting discovery; but the question to be determined is, which of the two processes is the least expensive?

In order to answer this question, and to judge correctly of the hopes entertained from this discovery, let us notice what chemists designate "equivalents." These are certain measurable ratios of effects which are proportionate to each other, and may therefore be expressed in numbers. Thus, if we require 8 pounds of oxygen to produce a certain effect, and we wish to employ chlorine for the same effect, we must employ neither more nor less than 35.4 pounds weight. In the same manner, 6 pounds weight of coal are equivalent to 32 pounds weight of zinc. The numbers representing chemical equivalents express very general ratios of effects, comprehending for all bodies all the actions they are capable of producing.

If zinc be combined in a certain manner with another metal, and submitted to the action of dilute sulphuric acid, it is dissolved in the form of an oxide; it is in fact burned at the expense of the oxygen contained in the fluid. A consequence of this action is the production of an electric current, which, if conducted through a wire, renders it magnetic. In thus effecting the solution of a pound weight, for example, of zinc, we obtain a definite amount of force, adequate to raise a given weight one inch, and to keep it suspended; and the amount of weight it will be capable of suspending will be the greater the more rapidly the zinc is dissolved.

If alternately interrupting and renewing the contact of the zinc; and, setting aside the name given to the force in this case, we know that it can be produced in another manner. If we burn the zinc under the boiler of a steam engine, consequently in the oxygen of the air, instead of the galvanic pile, we should produce steam, and by it a certain amount of force. If we should assume, that the quantity of force is unequal in these cases—that, for instance, we had obtained double or triple the amount in the galvanic pile, or that in this mode of generating force less loss is sustained—we must still recollect the equivalents of zinc and coal, and make these elements of our calculation. According to experiments made 6 pounds weight of zinc, in combining with oxygen, develop as much heat as 1 pound of coal; consequently, under equal conditions, we can produce six times the amount of force without the aid of coal as with a pound of zinc. It is therefore obvious that it would be more advantageous to employ coal instead of zinc, even if the latter produced four times as much force in a galvanic pile, as an equal weight of zinc in its combustion under a boiler. Indeed it is highly probable, that if we burn under the boiler of a steam engine the quantity of coal required for

## Water as Fuel.

This seemingly strange idea originated in an occasional remark of Sir Humphrey Davy. That, on the problematic exhaustion of coal, men will have recourse to the hydrogen of water, as a means of obtaining light and heat. As the gas used for lighting consists of hydrogen and a little carbon, it is only the latter which would have to be added, after the water had been decomposed into its elementary parts. M. J. Baré, of Brussels, was the first who extracted from water a gas, of twice as great an illuminating power as that obtained from coal. This gentleman produces hydrogen gas by the decomposition of vapour passing through vertical retorts filled with coke, being in a state of white heat. And at the moment of the light being thus formed, it is mixed with a little carbonic acid gas, obtained by the distillation of oil, tar or any other, or other coarse substance, hitherto useless in gas manufacture. He says that at the expense of one pennyworth of oil a light may be obtained during twenty hours, equaling that of ten tallow candles. Even conceding that M. J. Baré's discovery has not quite attained the object of using water for light, fuel, &c., still it has done something towards it. Professor Faraday says that the elements of a single molecule of water, contains 249,000 changes of an electric battery consisting of eight troughs of two inches in height and six inches in circumference. At the amount of these alternating forces the human mind is startled; however, if we should ever be able to elicit and make them available, the power of the mightiest steam engines would be derided to nothing, and thus ends would be employed by the means of things seemingly trifling and worthless, which cannot now be accomplished by any amount of expense.

## Hydrogen and Oxygen Gas.

If two parts of carbon and one part of hydrogen be mixed in a strong vessel capable of holding four ounces of water, it will inflame on presenting a candle to it, with a loud report. The result is water.

Take two parts of granulated zinc and one part of phosphoric acid and put them into a vessel with half an ounce of water and a quarter of an ounce of sulphuric acid; in a short time phosphuretted hydrogen gas will be produced and beautiful blue jets of flame will be seen to dart from the bottom of the liquid while its surface will be covered with a very luminous smoke.

## To obtain Heights which cannot be measured.

Take any two rods of unequal length, place the short rod at any convenient distance from the building, and the long rod at such a distance from it, that looking over the short rod and to the top of the building, the top of the long rod shall cut that sight. Then say, as the distance between the rods is to the height of the long rod over the short one, so is the distance of the long rod from the building to the height of the building, to which result add the short rod, and you have the height of the building.

## MECHANICAL MOVEMENTS.

## Amont's Engagement.



Tooth and pinion work have long since been used to regulate motion and in the application of machinery as a department of mechanism has been brought to such a state of perfection as the art of watch and clock making, especially chronometers. The perfection to which chronometers are now brought as guides to navigators on the pathless ocean, ought to be a special subject of gratitude to all men, as with the great commerce of the world at the present day, in comparison with any age of the past, by this little, but beautiful instrument, the dangers of navigation are much lessened from what they were before the above

improvement has been going on for centuries. The above cut is a representative of Amont's dead beat engagement, the principle of which we explained in a former article. He was famous as a watch maker in France, and instead of the ratchet wheel and clutches, he used, as will be perceived, the pinion and pallets as the balance, which vibrating on a small centre to the right is the cut, allowed one pin of the wheel to escape at each vibration of the pendulum.

## Pneumatic Motion.



There have been various forms of the wind mill, some made with lathe and others with convex sails, and strong water variations; the machine represented in the above engraving has been used, but has not been considered so good or valuable as the common wind mill. It will be observed that the revolving spindles or shafts so that supposing the wind to be in the direction of the arrow, the sails have been contrived to present the edge to the wind towards the wind and thus to produce circular motion and drive the main shaft.

## Soap.

As soap is at present every where used for washing, the question arises what substitutes were employed before it was invented. Those with which I am acquainted I shall mention and endeavor to illustrate. They are still used though not in general; and they are all of a soapy nature, or at least have the same effects as soap, so that we may say that the ancients used soap without knowing it. Our soap is produced by a mixture of lixivious salts and tallow, by which means the latter becomes soluble in water. The greater part of the dirt on our lines and clothes consist of oily perspirations or grease, or dirt which that grease attracts, and which either cannot be washed out, or but very imperfectly, by water alone. But if warm water, to which lixivious salts have in any manner been added, be taken, and if dirty cloth be rubbed in it, the greasy dirt unites with the salts, becomes aqueous, and is so far soluble in water that it may be washed out. There are also natural juices which are of a soapy nature in the state in which we find them, and which can be employed in the stead of artificial soap. Of this kind is the gall of many animals and the sap of many plants. The former being less strong in its effects, on account of its slimy nature, is used at present particularly for colored stuffs, the dye of which is apt to fade.—Beckmann's History of Inventions.

To throw some practical light upon Mr. Beckmann (whose work, old as it is, should not be despised but which would have been far more valuable had its modern publishers added the progress of inventions) we would advise those who have fumigations or cloths and elegant colors, to boil some bran in rain water and use the pure liquor cold for washing. Nothing can be so simply done, and nothing can equal it for ease upon the collar and for cleaning the cloth.

## Peat Composition.

The French have lately made a discovery well worth notice in this country, by which they are enabled to make ornaments from "peat." It appears that the peat when taken from the bog, is reduced by beating to a fine pulp, and is then placed under a press, to force out all humidity, except such as is necessary to keep it sufficiently moist to receive impressions in the mould in which it is placed. In this state it may be converted into ornaments of every kind, such as are made in embossed leather. Rendered firm by a solution of alum, or other adhesive materials, it

Ireland, with its bogs, also turn this novelty to manufacture to advantage.

## Atmospheric Pile Driving.

Dr. Potts, of England has invented a new method of pile driving in hard sands, which promises to be of great advantage in the building of light houses, breakwaters, and wharfs. The invention consists in using a hollow cylindrical pile and exhausting it of all its air, when it has been forced to descend as if by magic, while other piles in the same place took 45 blows of a ram of 122 lbs. with a fall of 10 feet. Upon this principle the inventor has founded a system of marine architecture, which promises to be of immense importance and will lead to the erection of sea and river works and the reclamation of land, which never could have been effected by any other means, and the security of foundations thus fortified, and the rapidity and economy of their construction, would be astonishing.

## Cinnamon Laxative.

These agreeable to-cure-of laxatives, may be easily prepared at home. For sweetening the laxative any syrup, drinking or taking offensive medicines, they duly counteract the following original formula has been used with admirable success.—Take of cinnamon in very fine powder one drachm, cloves in powder one scruple, nutmegs (powdered) ten grains; powdered cardamom seeds twenty grains, double refined loaf sugar two drachms.—Reduce the ingredients to an impalpable powder, mix and sift them well together; then add oil of sweeten drop, oil of cinnamon three drops, and water sufficient to make a stiff paste then divide the mixture into lumps of about three grains each.

Earth is often so loved in several parts of the world. Near Moscow, a hill furnishes earth of this description, which will ferment when mixed with flour.

Insects breathe through holes or pores on each side of every segment of the abdomen, called spiracles.

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